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AUTHOR Karcher, Christopher Robb
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ABSTRACT

This review of research on post-traumatic stress disorder (PTSD) in children resulting from human violence focuses on methodological issues, types of violence, treatment issues, and directions for future research. Literature reviewed is predominantly that published since 1986. An introduction offers background information and examines the biological aspects of trauma. Intrafamilial violence is considered, including experiencing parental abuse or witnessing parental violence. Extrafamilial violence reviewed includes school discipline, sniper attacks, and political violence. The discussion of school discipline identifies two levels of disciplinary practices: routine verbal and physical techniques which cause mild stress in most students, but may cause an extreme reaction due to idiosyncratic factors in some children, and severe stressors in the form of physical and mental abuse used by educators in the name of discipline and motivation. Terr's classification of Type I and Type II disorders is discussed. Treatment issues focus on the need for treatment and specific modalities, including crisis intervention, behavioral treatment, cognitive treatment, family intervention, hypnosis, and residential treatment. A three-way interaction model for conceptualizing factors which affect the manifestation of trauma symptoms is used to help facilitate discussion on the need for future research. (Contains approximately 60 references.) (JDD)

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POST-TRAUMATIC STRESS DISORDER IN CHILDREN AS A RESULT OF VIOLENCE: A REVIEW OF CURRENT LITERATURE

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of the Requirements for the Degree

Doctor of Psychology

by

Christopher Robb Karcher

May, 1994

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POST-TRAUMATIC STRESS DISORDER IN CHILDREN AS A RESULT OF VIOLENCE: A REVIEW OF CURRENT LITERATURE

by

Christopher Robb Karcher

APPROVED:

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Second Reader Date 10/27/94

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Date

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ABSTRACT

POST-TRAUMATIC STRESS DISORDER IN CHILDREN AS A RESULT OF VIOLENCE: A REVIEW OF CURRENT LITERATURE

by

Christopher Robb Karcher

This paper is a review of the research on Post-Traumatic Stress Disorder (PTSD) in children resulting from human violence. Though much has been written about PTSD, few have adequately reviewed the empirical literature and even fewer have focused specifically on PTSD induced by violence. The studies reviewed draw from a variety of populations. Methodological issues are presented. Discussion of Terr's symptom classification in traumatized children is followed by treatment considerations. A three-way interaction model combining person, event, and environment in conceptualizing factors affecting the manifestation of trauma symptoms is used to facilitate the discussion on the needs for future research.

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POSTTRAUMATIC STRESS DISORDER IN CHILDREN AS A RESULT OF VIOLENCE: A REVIEW OF CURRENT LITERATURE

Introduction

In the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., revised) (DSM-III-R) post traumatic stress disorder (PTSD) is listed as an Axis I anxiety disorder. The symptoms of PTSD arise after an individual experiences a psychologically distressing event outside the range of usual human experience and would be distressing to anyone, e.g., involving a threat to life or physical integrity, a threat to a close relative, or sudden destruction of one's home or community. Victims of PTSD display three basic categories of symptoms lasting for at least one month: (a) reexperiencing of the trauma as evidenced by recurrent and intrusive recollections of the event expressed verbally, behaviorally and/or through dreams, (b) avoiding stimuli associated with the event or developing a numbing of general responsiveness, such as avoidance or restricted range of affect, psychogenic amnesia for the traumatic event and/or feeling detachment or a sense of a foreshortened future, and (c) demonstrating a persistent increase in arousal as demonstrated by sleep difficulties, hypervigilance, irritability, physiologic reactivity upon exposure to events that symbolize facets of the trauma and/or an inability to concentrate (American Psychiatric Association [APA], 1987).

The fact that children can suffer PTSD reactions received formal recognition in the DSM-III-R with its inclusion of symptoms specific to children. It was recognized that though similar, not all the criteria given for adults applied to children, and some of the criteria have been modified to represent the symptoms which are usually seen in children. For example, children rarely report adult-like flashbacks but describe disturbing intrusive images and sounds. They reenact parts or all of the incident in their play, which may become extremely repetitive. Though children do not usually describe feeling "numb," often they report feeling distant or alone with their feelings (Pynoos & Nader, 1990). A symptom of PTSD in children may be "omen formation" which is the belief in an ability to prophesy future untoward events. Children also may lose recently acquired developmental skills such as language skills or toilet training (APA, 1987).

Purpose and Scope of Paper

Though a large number of review papers (e.g., Lipovsky, 1991; Lyons, 1987) have been published on various forms of childhood PTSD, few focus on the empirical literature. Some notable exceptions include reviews having to do with natural disasters (e.g., Aptekar & Boore, 1990; Udwin, 1993; Yule & Williams, 1990), sexual abuse (e.g., Hanson, 1990; Kendall-Tackett, Williams, & Finkelhor, 1993), and stressors which produce PTSD in children (McNally, 1993). The purpose of this paper is to review the empirical literature on PTSD in children as the result of experiencing or being exposed to various forms of violence perpetrated by humans. After considering background and biological aspects to trauma, the methodological issues will be presented. Then, the empirical literature, which draws its subjects from a variety of populations, will be reviewed.

Next, empirical findings in regards to Terr's (1991) work on the trauma symptoms found in children who have suffered chronic versus acute abuse will be presented. To conclude the paper, treatment considerations and the need for future research will be discussed. A three-way interaction model for conceptualizing factors which affect the manifestation of trauma symptoms will be used to help facilitate the discussion on the need for future research.

Posttraumatic stress disorder as a result of sexual abuse is not specifically covered for several reasons. Though it is physically and emotionally damaging, it is not always violent in terms of an angry and callous force used against another. To consider this area of research would be another paper in itself. Also, several empirical reviews have already been written (as mentioned above). The literature reviewed will be predominately that since the year 1986. This is due to the lesser amount of research done on PTSD in children before this year. Eth and Pynoos (1985) edited Post-Traumatic Stress Disorder in Children which summarized this area.

Where appropriate, nonempirical literature will be included to facilitate the discussion of this topic. The contribution of nonempirical literature and case studies to this field are invaluable since many times they lead the way for the evolution of theory and future research. It also appears in this field of research that nonempirical works often have a larger focus on trauma and abuse rather than having to stay within the confines of a DSM-III-R diagnostic criteria. Thus, they help give insight and many different levels of understanding which may not be afforded within a strict empirical

study. Much of the best work in the field comes by way of nonempirical writings.

Background

Sigmund Freud (van der Kolk, 1987) was interested in the lasting psychological damage resulting from early events, particularly those events occurring early in life. Freud came to believe that the development of neuroses was not due to actual childhood trauma but tied to intrapsychic elaborations of childhood fantasies and misinterpretations of events. This resulted in external psychological trauma losing its central importance in psychoanalytical thinking. In the 1960s and 1970s psychiatry gradually shifted from an intrapsychic model to a biochemical model, emphasizing genetics and biology in mental illness (Doyle & Bauer, 1989). However, neither the biomedical nor the psychoanalytic points of view adequately address the impact of traumatic life events on people's identities and psychopathology. The American Psychiatric Association formally recognized the impact of traumatic life events when it introduced a separate category for the human response to overwhelming life events under the heading of Posttraumatic Stress Disorder. Though stress and anxiety reactions to extreme life events had been recognized in both adults and children by many professionals in the field, it was only in the DSM-III that a diagnostic schema was used to reflect this association (Schwartz & Kowalski, 1991).

Prior to 1985 there were few accounts of children's short and longer-term reactions to disaster. For a while the prevailing view was that if children were affected following a traumatic event, their difficulties were in most cases short-lived. More recently this view has been revised, largely

due to the great number of publications in the last 7 to 10 years dealing with children's psychological reactions following exposure to traumatic events. It is now accepted that children as young as preschoolers can have PTS reactions which are similar to adults' and which persist for many months or years (Udwin, 1993). One of the early pioneers in the field was Terr (1983) with her study of kidnapped children in which she described symptoms specific to children's stress responses. It was these symptoms which were subsequently incorporated into the DSM-III-R under the heading of "age specific features" (Applebaum & Burns, 1991). Terr (1990) has authored Too Scared to Cry: Psychic Trauma in Childhood, an excellent book that has become a standard in the field of psychic trauma in children.

Biological Aspects of Trauma

In general, when the effects of trauma are considered, only the psychological domain is discussed. However, over the last several years the effects of trauma have begun to be understood in regards to biological functioning as well. The biological aspects of trauma have important implications for treatment. There is now research evidence that biological changes occur with trauma to affect: (a) autonomic hyperresponsiveness, (b) stress induced analgesia, (c) social attachment in central nervous system maturation, and (d) information processing.

Van der Kolk and Greenburg (1987) stated that people with PTSD have continuing physiological hyperreactivity due to increased autonomic arousal. This arousal becomes nonspecific and may occur to a large variety of stimuli due to habituation to the original trauma and to learning generalization. Over time, chronic anxiety, without conscious reference to the trauma, persists in a large portion of individuals. The correlation

between actual external threat and the physical emergency responses is lost. The intensity of autonomic arousal in traumatized people often leads to an intensification of emotional reactions and causes them to go immediately from stimulus to response. No longer a preparation to meet external threat, autonomic arousal itself becomes a precipitant of fear and emergency responses.

Van der Kolk (1988a, 1988b) and van der Kolk, Greenburg, Boyd, and Krystal (1985) used the animal model of inescapable shock to provide an opportunity to study the physiological response in PTSD and the biological substrate of its psychological effects. An animal's response to inescapable shock is similar in terms of biochemical and behavioral sequelae to what is known about the human response to overwhelming trauma (van der Kolk, 1988a). Inescapable shock results in biochemical changes, including alterations in norepinephrine, dopamine, serotonin, and endogenous opiod utilization. This altered biochemical response is thought to be due to utilization exceeding synthesis, resulting in depletion. After repeated or prolonged stress, depletion becomes a conditioned response, which eventually can stimulate receptor hypersensitivity and result in excessive responsiveness at times of subsequent stress.

The behavioral sequelae of catecholamine depletion following inescapable shock in animals closely parallel symptoms of PTSD in humans (van der Kolk et al., 1985). The diminished motivation, decline in occupational functioning, and constriction seen in PTSD are correlates of norepinephrine depletion. The symptoms of hyperactivity (e.g., startle responses, explosive outbursts, nightmares, and intrusive recollections) in humans resemble those produced by chronic noradrenergic hypersensitivity

following transient catecholamine depletion after acute trauma in animals (van der Kolk, 1987).

Ornitz and Pynoos (1989) looked at startle modulation in children with PTSD. Startle responses to bursts of white noise were recorded as blink reflexes 17 - 21 months after a sniper attack in six children with PTSD and in six children used as control subjects (age ranged 8 - 13). Startle modulation in both rats and humans are mediated by brainstem mechanisms. The children with PTSD experienced a significant loss of the normal inhibitory modulation of startle response ($p = .03$), suggesting that the trauma had induced a long-lasting brainstem dysfunction.

Van der Kolk (1988b) explained that the visual and motoric reliving experiences, nightmares, flashbacks, and reenactments generally are preceded by physiological arousal. Long-term augmentation of memory tracts following trauma underlies the repetitive intrusive reliving of the trauma under conditions of subsequent stress. Noradrenergic stimulation of locus coeruleus-hippocampal pathways at the time of the trauma can set up hyperpotentiated pathways which are reactivated at times of subsequent arousal, particularly during periods of cortical inhibition which occur during intoxication, sleep, or when under stress. This may account for the increase in both flashbacks and nightmares when a person with chronic PTSD experiences major subsequent stress.

Animals exposed to inescapable shock develop analgesia (numbness) when reexposed to a subsequent stressor (van der Kolk, 1988a). The analgesic response is mediated by endogenous opiods. Severe and chronic stress may result in a physiological state resembling dependence on high levels of endogenous opiods. Reexposure to traumatic situations seems to

evoke in humans an endogenous opiod response analogous to that seen in animals in response to even mild shock subsequent to inescapable shock. Over time, a cycle of dependence and withdrawal may occur (van der Kolk et al., 1985). Endogenous opiods in response to stress in previously traumatized people is in fact the symptom of numbness found in PTSD and also could explain the frequency with which childhood trauma is associated with subsequent self-destructive behavior.

People are biological organisms who develop physically in a social context. Research with primates has demonstrated that ongoing neurobiological development is strongly influenced by the quality of attachment to caregivers (van der Kolk, 1988b). Attachment between mother and child is maintained with a complex interactional system, disruption of which can result in trauma. In a variety of animal species, including humans, infants seek increased attachment in the face of external danger. Lack of parental response results in a biphasic protest/despair response which is most likely correlated with hyperactivity and underactivity of a variety of neurotransmitter systems. An infant's cry ceases upon the caregiver's return. The caregiver's failure to return may lead the children to despair. An infant's protest and despair responses to parental deprivation parallels the hyperarousal and numbing states found in PTSD. Unresponsive or abusive caregivers may cause an infant to experience extremes of over- and underarousal that are physiologically disorganizing. This physiological instability, in turn, can interfere with the infant's capacity to assimilate and accommodate to new information and sets the stage for the vulnerability to develop PTSD in response to further stressors. Like animals who have been exposed to inescapable shock, infants

who are separated from their mothers show changes in hypothalamic serotonin, adrenal gland catecholamine synthesizing enzymes, plasma cortisol, and immunoresistance (van der Kolk, 1988b). These changes are not minor and persist over time. Psychological effects of early separation rest on long-term neurobiological alterations.

Both a person's developmental level and the degree of physiological arousal determine the way in which information is processed and memories are stored (van der Kolk, 1988b). As the central nervous system matures, humans develop more sophisticated means of processing information: enactive, iconic, and symbolic/linguistic. During periods of stress, people tend to revert to earlier modes of representation. The trauma experience does not fit into existing conceptual schemata, for it overwhelms and precludes assimilation and accommodation, leaving it to be organized on a less sophisticated level (for instance, as a horrific image or visceral sensation). Under ordinary circumstances, memories of these experiences are often difficult to retrieve, but can be reactivated by symbolic cues (i.e., state-dependent learning).

Children are particularly vulnerable to physiological disorganization due to trauma (van der Kolk & Greenburg, 1987). Children rely most on caregivers for modulation of arousal and acquisition of cognitive schemata to frame the experience. Cognitive schemata serve as a buffer against being overwhelmed. Traumatic experiences will be stored in memory, but somatosensory elements may override linguistic representation and be expressed as anxiety attacks and/or panic disorder. Children are more prone than adults to react to trauma on a somatosensory level and often have little cognitive awareness of the origin of these reactions. One implication of

these data on information processing is that when trauma occurs it is recorded and stored in the body. These data are pertinent currently due to the political controversy over the validity of "false memories" retrieved in adulthood.

In conclusion, autonomic hyperresponsiveness, stress induced analgesia, social attachment in central nervous system maturation and information processing are all psychobiological functions which can be greatly disrupted by trauma. Psychic trauma is recorded and stored in the body, leaving an indelible mark, particularly if it is not dealt with properly in a healing environment. The effects of trauma do not "go away" even though a specific event may not be remembered or "felt" in conscious awareness.

Methodological Issues

Bernstein and Borchardt (1991) stated that in the previous five years there have been a number of epidemiological studies reporting the prevalence rates of anxiety disorders in nonreferred children and adolescents. In general they concluded that the methodologies of these studies are sound and the investigations represent a great advance in knowledge. Specific to PTSD as a result of violence, many studies examined the impact of a disaster (e.g., a school shooting or abuse) upon a group of children who experienced varying degrees of exposure or duration. Disasters, by their nature, are unpredictable and frequently preclude development of methodologically sound and preplanned study. It is a challenge to control such variables as age, family background and sampling (Schwartz & Kowalski, 1991) and necessitates using checklists, interviews,

and retrospective inquiry. Though there are some limits to the studies due to methodological issues, researchers generally do the best they can with the situations available. Bearing these comments in mind, the following are important and often interrelated methodological issues to consider when reviewing this literature.

Samples

The samples used in the research demonstrate considerable variation in the types and sizes of target populations. Studies used samples that were drawn from populations including children who were psychiatrically hospitalized, traumatized while in school, exposed to war and physical abuse, outpatients, and children involved with the juvenile courts system. As a result, different aspects and facets of PTSD are emphasized for investigation.

There are several important sample variables. Is the sample derived from a clinical or nonclinical population? The selection of subjects for a sample based on clinical referral may be biased. That is, subjects have been selected on the basis of accessibility rather than their usefulness in representing the population. Such is the case in studies (e.g., Famularo, Kinscherff, & Fenton, 1992; Kiser, Heston, Millsap, & Pruitt, 1991; Masser, 1992) which use psychiatric inpatients or outpatients as the experimental group. In these instances, the use of mental health services defines which subjects, of all those in the general population who have PTSD, become psychiatric patients. Since these particular studies focused only on subjects who were in contact with psychiatric services, it becomes impossible to distinguish between the two separate variables. Focusing specifically on psychiatric patients excludes the general population, where there may be a

lower or higher percentage of children with PTSD (Bernstein & Borchardt, 1991). However, research in this field is not confined to using clinical subjects. Several studies (e.g., Hyman, Zelikoff, & Clarke, 1988; Nader, Pynoos, Fairbanks, & Frederick, 1990; Schwartz & Kowalski, 1991) have evaluated school children after a traumatic event. This allows for research on nonclinical populations though the willingness for children and parents to allow the child to participate in further or more detailed studies necessarily raises issues of unique characteristics of volunteers versus nonvolunteers.

Some studies (Dawes, Tredoux, & Feinstein, 1989; Kinzie, Sack, Angell, Clarke, & Ben, 1989; Malmquist, 1986) suffer from a lack of control or comparison groups to provide a context for their results. Sometimes control groups were the school children with various levels of exposure to a traumatic event or children from different schools or classes who were not exposed to the trauma at all (Nader et al., 1990; Pynoos et al., 1987). In other studies, control groups have been comprised of subjects in a group who were screened right along with others who were found to have PTSD (Saigh, 1989a, 1989b). The subjects without PTSD are then used as the control group to compare against the subjects who are diagnosed with PTSD. The relular use of one or more control groups would strengthen the studies.

Many researchers have studied subjects from very broad age ranges (e.g., 2 - 18) and grouped them together to discuss symptoms. Many times this is due to restricted accessibility of subjects and to increase N. Grouping together all ages can mask particular developmental patterns of the occurrence of some symptoms. Unless such a procedure would distort the accuracy of results, researchers should divide the children into two or three

age ranges when reporting the percentages of victims with symptoms. It would be better to provide some detail on how age at assessment affects the manifestation of symptoms by looking at smaller age ranges and tying this information into theory about children's social, emotional, and cognitive development during these developmental periods. A parallel effort is needed with regard to gender. Researchers group together boys and girls and may not assess gender differences or give the issue much consideration (Kendall-Tackett et al., 1993).

Assessment

Another facet to evaluate in the literature is who provided the information which determined the prevalence rates or symptomology. Most researchers will at least assess the children. Assessing the children is important but is also only one perspective to the complete picture. Gaining information from the parents is advantageous. However, some findings demonstrated a poor association between parents' and children's reports (Kendall-Tackett et al., 1993). More specifically, there is low agreement between child and parent reports of prevalence rates for childhood anxiety disorders. In studies that use both child and parent reports the prevalence rates are higher based on the children's self-assessment of symptoms compared with parent's reports (Bernstein & Borchardt, 1991). Some findings (Famularo et al., 1992) specific to traumatization suggest that parents, and particularly fathers, underestimate their child's trauma symptomology. However, other studies show that children's self-reports tend to minimize problems like depression or low self-esteem that are noted by parents and therapists (Kendall-Tackett et al., 1993).

A clear implication is that assessments should be obtained from multiple sources in addition to efforts to improve the validity of parent reports and children's self-assessments. Children and parents each have a perspective valuable to understanding the effects of trauma on children. Fortunately, a majority of the literature on PTSD in children as a result of violence relies on more than one source of information, including the children and usually the parents (and occasionally teachers) assessing the children's symptomology through checklists and/or structured interviews.

The quality of research varied according to the number and type of measures that are used to determine the prevalence and degree of PTSD. Common methods used in this research were checklists, sometimes authored by the researcher, some of which were administered to parents and others which were administered to the children. Structured interview with parents and/or children is another common method of data gathering. Such interviews as well as other instruments usually contained the DSM-III-R criteria for PTSD in children and might also inquire into mood and behavioral symptoms associated with PTSD. In a couple of cases (e.g., Famularo et al., 1992) records were reviewed (e.g., hospital or court), and contact with parents and children did not occur. The studies usually had a short discussion of the psychometric properties of the instruments that were used.

Several instruments are frequent in the literature. The Diagnostic Interview for Children and Adolescents, Revised 6th Version (DICA-6-R) is a structured psychiatric interview which includes questions initially patterned after the National Institute of Mental Health Diagnostic Interview Schedule and is based on DSM-III (APA, 1980). There is both a child's (5 - 12

years) and adolescent's (13 - 17) version along with a parallel parent version leading to the same diagnoses. It includes 275 questions and is organized into demographic, diagnostic, and symptom profiles and addresses most Axis I diagnoses (Famularo et al., 1992). No reliability or validity information is given.

The Post-Traumatic Stress Reaction Index is a 20-item scale patterned after the DSM-III (APA, 1980) criteria for PTSD. A child's version has been expanded to reflect DSM-III-R (APA, 1987) criteria. It has been widely used to assess symptoms after a broad range of traumatic events. The scale uses a Likert five point format. Cutoff scores are used to determine the severity levels of PTSD. The correlation of Reaction Index scores with confirmed clinical cases of PTSD is .91 with children and an inter-item agreement for two interviewers who rated the same 10 children was 94%; Cohen's kappa was .88 (Pynoos & Nader, 1988).

Two measures used often but not specific to PTSD were the Child Behavior Checklist which is filled out by the parents about their children ages 4 - 16. It assesses areas of social competence (e.g., school performance, activities, social involvement) as well as 118 behaviors indicative of problem adjustment (Deblinger, McLeer, & Henry, 1990). The Child Depression Inventory is a 27-item self-report measure and is a downward revision of the Beck Depression Inventory to assess affective, cognitive, and behavioral symptoms of depression in children (Deblinger et al., 1990). No reliability or validity information is given for either instrument.

Most studies relied on more than one measure. This is important due to the fact that each measure has its particular bias and limitations. As more measures are used, confidence increases that the dimension of interest

is in fact being assessed. This is due to the fact that clinical phenomena tend to be multifaceted; no single measure can be expected to address all the many different components, and a subject's score on a measure is partially determined by the method of assessment used (Kazdin, 1980). In general, the use of a combination of measures (e.g., interviews, checklists, behavioral observations) is warranted to adequately cover important aspects in evaluating PTSD in children.

The adequacy of the statistical measures used for research reviewed was quite good. The empirical studies used analysis of variance and multiple analysis of variance as statistical tools to determine overall group differences. Between groups comparisons of categorical data and the determination of the presence or absence of individual symptoms were usually made using chi-square analyses.

Researchers are operationalizing variables with greater uniformity than in the past due to the newer diagnostic criteria. This did not occur in the past due to PTSD in children being a relatively new field of study. In earlier studies, researchers used DSM-III criteria or added other criteria for their investigations and may have been focusing more on the general effects of trauma and not specifically PTSD as defined in the DSM-III-R.

After a significant traumatic event, a certain number of children will be assessed as asymptomatic. This raises the question as to whether they truly are unaffected or whether the instruments currently being used are not sensitive enough to measure consistently and accurately (Kendall-Tackett et al., 1993). In response to these concerns, several researchers have attempted to develop more sensitive measures and have employed these to assess specific aspects of PTSD. It is interesting to note that research looks at the

nature of PTSD in children but does not account for children who experience the same or similar trauma and do not develop PTSD. There is an emphasis on childhood PTSD while less research investigates those who do not have PTSD.

Procedures

Anything that influences the relationship between children exposed to a traumatic event and their being (or not being) diagnosed with PTSD can be seen as an intervening variable (e.g., age, maturity, gender, social support, parental trauma, relationship with parent, past traumas, type of trauma, aggressor). In this area of study, these variables are an inseparable part of the child displaying trauma symptoms. It would be of value and practicality to investigate these intervening variables. It has been shown (Green et al., 1991; Pynoos et al., 1987; Schwartz & Kowalski, 1991) that trauma-related variables are associated with outcome and thus should regularly be included in analyses.

However, many other factors are influential as well, and some emphasis should be placed on understanding their role. These factors include children's intelligence, coping skills, prior adjustment, and cognitive interpretation of the trauma. They also include children's family and social environment as well as the actions taken by professionals in response to disclosures. Another variable that regularly needs to be taken into account is time elapsed since the end of the traumatic event. In some samples, several years might have elapsed between the end of the trauma and the assessment of the child, and during this time symptoms may have abated and other variables influence the symptom picture (Kendall-Tackett

et al., 1993). Conceptualization of these confounding and/or intervening variables will be discussed in the last section of this paper.

Another methodological concern relates to the generalizibility of the research. Difficulties with generalizing the results from any one study come from the nature of the trauma and the sample. Studies examine the impact of a trauma upon a group of children. Disasters, by their nature, are unpredictable and frequently preclude development of methodologically sound and preplanned study. The children's experiences are subject to distortion of recall. Given the constraints, no data collection would have been possible in the samples had researchers approached it primarily for the purpose of pure empirical research. Many times the data for studies are derived from general screenings which are undertaken to identify those who have been adversely affected or at risk for future difficulties. Also, motivation for participating in a study may reflect some unique patterns of subject characteristics particular to the current situation (Schwartz & Kowalski, 1991). In terms of external validity, each study should be looked at individually, taking into account the population represented and the particular situational factors involved.

A great deal of research relies on assessment of trauma at a specific age or point in time (a snapshot approach) to assess the presence or absence of PTSD. In the past, some of this may have been due to researchers focusing on establishing the diagnosis of PTSD in children. Currently, except for researchers such as Nader et al. (1990) and Terr (1983), few include performance on measures of PTSD obtained at more than one occasion. It would be helpful to have more longitudinal studies on children who were identified as suffering from PTSD during an initial study. Implications

concerning the transitory versus long term nature as well as recovery over time could then be discussed more confidently. Furthermore, symptoms may tend to recur at different developmental stages and asymptomatic children may later become symptomatic. For example, the symptomology of a 15-year-old traumatized at age 5 may be different from that of a 15-year-old traumatized at age 14. Studies in which data are collected at more than one time will encourage a developmental approach for studying traumatization. Research using a developmental approach may also respond to some of the methodological issues raised here in terms of generalizibility. Even in the absence of funding, any research on outcomes should at least pave the way for possible later follow-up by gaining permission to recontact subjects and by recording data that will facilitate such research in the future (Kendall-Tackett et al., 1993).

Intrafamilial Violence

In 1985 approximately 1.9 million cases of child abuse and neglect were reported in the United States (Pynoos & Nader, 1990). It has been estimated that for every case reported, two or more cases of child abuse are unreported. More than 87,000 rapes outside of marriage were reported in 1986, and it is estimated that over 20% occurred with children present. However, these figures are underestimated for rape is an underreported crime by as much as a 10:1 ratio. It is also estimated that 3.3 million children witness spousal abuse annually (Silvern & Kaersvang, 1989).

With the large number of children who have suffered intrafamilial violence, it is surprising that very little work has been focused on this population since 1986. Even more surprising, there were few empirical

works since 1986 which focused on nonsexual childhood physical abuse in relation to trauma and PTSD. Research abounds in the areas of PTSD and trauma via sexual abuse, and there are many studies on different facets of physical abuse, but the link between trauma and PTSD to child physical abuse is lacking. One general observation is that a number of journals deal specifically with physically abused children but do not venture into areas of formal diagnosing; while a number of other jounals venture into the area of formal diagnosing but do not focus specifically on children who are battered or physically abuse. Some of the empirical work which has been done was reviewed by Eth and Pynoos (1985) and Goodwin (1988). What has been produced in terms of intrafamilial violence has important implications for working with traumatized children.

Experience of Parental Abuse

Famularo et al. (1992) selected children (n = 61) between the ages of 5 - 10 who were abused by their parents to investigate the psychiatric diagnoses of child maltreatment. The maltreated group was selected from an urban juvenile court and an outpatient department of pediatrics located within the court's jurisdiction. Subjects drawn from court met the legal requirement of child maltreatment and were involved in civil proceedings related to these incidents. Children in the hospital sample had to have at least two substantiated child abuse reports on file. The control group (n = 35) was drawn from children receiving treatment at the same hospital who had no history of abuse. The groups were matched on the basis of age, gender, race, and family income. Compared to the control group, maltreated children had a significantly greater incidence of PTSD (Fischer's Exact 2-tailed test: p < .002; odds ratio = 46.39), as well as attention deficit hyperactivity disorder

and oppositional disorder. Specifically, 39% of the maltreated group received diagnosis of PTSD while 0% of the control had PTSD as measured on the DICA-6-R.

Famularo, Kinscherff, and Fenton (1989) reviewed 115 randomly selected juvenile court cases between 1985-1989 in which the parents had lost custody of their 5 - 14-year-old children. The purpose of this retrospective study was to determine the incidence of PTSD among children presenting in a forensic setting with documented abuse. By using a PTSD Inventory checklist based on the DSM-III-R it was determined that 20.9% of the overall sample had PTSD. When a child had both physical and sexual abuse combined, 33.3% had PTSD. These numbers are likely to be underestimated because PTSD was a new diagnosis in children when the records were active and other childhood diagnoses were more common. Both studies by Famularo et al. (1989, 1992) as well as the literature review by Goodwin (1988) supported what was already believed: PTSD is a common consequence of maltreatment in childhood.

However, if childhood trauma is considered only in terms of physical and sexual maltreatment, other forms of trauma may not be discovered. For example, Saigh (1991) found that Lebanese children with verbally mediated PTSD (traumatic information verbally transmitted) as a result of war (n = 13) did not score significantly different on measures of depression, anxiety, or classroom misconduct when compared to those children who had PTSD mediated by direct war exposure (n = 58), war observation (n = 128), or combinations thereof (n = 31). A control group (n = 35) was derived from assessing two classes of Lebanese elementary school children and selecting those who did not meet the criteria for PTSD. All four groups scored

significantly higher than the control group on all three measures. A conclusion drawn from these (Famularo et al., 1989, 1992) studies is that the prevalence of PTSD is so great that when a history of childhood abuse or trauma exists, whatever form they might take, there should be screening done to assess the presence of PTSD.

Witness of Parental Violence

Pynoos and Nader (1988) have done the only study to date which has focused on children witnessing the sexual assault of their mother. The small sample of children (N = 10) in this report ranged in age from 5 - 17 and were referred to the authors by rape crisis centers or hotlines, victim witness assistance programs, and mental health professionals. Children's reactions were evaluated based on parent and child interviews. The total number of symptoms reported were converted into the children's score on the Post-Traumatic Stress Reaction Index. Nine of the 10 children exhibited severe, and one moderate PTSD and were also found to have increased problems with aggression, sexuality, self-esteem, increased feelings of vulnerability, and increased pessimism about the future. These reactions are similar to those of sexually abused children and indicate that child witnesses may need special therapeutic attention. It was observed that these children will reenact the experience with sexualized play. This is not nearly as common with other kinds of trauma which produce PTSD symptoms. Also, a trend was found that as age increased, the number of PTSD symptoms decreased. This was explained in terms of cognitive development: Younger children have greater difficulty processing the events. Being able to discuss and clear away the confusion which exists over these events might be an important intervention for these children.

The only empirical work to date which has investigated the issues of children witnessing parental murder was a poorly done study by Malmquist (1986). The report could have been improved by mentioning how the sample (N = 16) was derived, using a questionnaire normed on children instead of adults (if available in 1986), and using a control group. In this work it was concluded that all the subjects had PTSD, and that grief, depression, and somatization are commonly seen after the trauma. Though this symptom picture could be seen in children whose parents died in other ways, given the year in which this study came out, the observation may have been novel. Also, the children who adjusted best had sound internal resources and were exposed earlier in their life to minor traumas with which they have been able to cope well.

Since the work done by Malmquist (1986), only case studies by Black and Kaplan (1988), and Black, Harris-Hendricks, and Kaplan (1992), have focused on children witnessing parental murder, specifically, fathers who kill mothers. These case studies were derived from the authors' experiences while part of a child psychiatric team. In brief, children witnessing the murder of a parent experience a devastating shock. These children are orphaned due to the mother's death and father either being incarcerated or hospitalized. The children have to deal with the trauma of violence, dislocation, and new insecurity regarding where and with whom they will live, the stigma of being a child of a killer, and the experience of massive conflicts of parental loyalty. How the children are dealt with right after the murder can drastically affect the clinical picture (Black & Kaplan, 1988).

Black et al. (1992) emphasized that children need to be seen as soon as possible after the killing by a mental health service provider in order to

limit the severity of PTSD symptoms. Bereavement counseling will be helpful in a majority of cases, but PTSD may block the path of normal mourning. Excluding PTSD, over half the children had one or more psychiatric problems, and only 10% were found to have no psychiatric diagnosis at all. Long-term issues need to be worked out in the best interests of the child (e.g., permanent placement for the child, attending the funeral and seeing the body, access and custody of the offending parent, the child's capacity to witness in court at their parent's trial, obtaining compensation for the child where appropriate, and dealing with extended family conflict and pressures). Ambiguity about long-term issues is also traumatizing.

Extrafamilial Violence

Similar to intrafamilial violence, there are large numbers of children exposed to extrafamilial violence yet only in the last several years have some of these issues been studied empirically. Some of this can be explained due to this field of study being relatively new. Some of the areas considered in this section include school discipline, sniper attacks, and various forms of political violence.

School Discipline

One of the purposes of the research done by Hyman et al. (1988) was to increase understanding about the nature of PTSD when it occurred as a result of school related abuse. The investigation centered around first, third, and fourth grade school children ($N = 34$) who were victims of excessively punitive disciplinary practices in schools. Assessment of these children included a review of school records, parent and child interviews, Burke's

Behavioral Rating Scale, House-Tree-Person, and a battery of tests to assess academic and intellectual functioning.

It was observed that disciplinary practices can occur at two levels. The first level is the use of routine verbal and physical techniques which cause mild amounts of stress in most students. This occurs by the use of casual or unthinking criticism as well as punishment techniques such as sarcasm and humor at the expense of the child. Though these stressors do not normally result in PTSD, a variety of idiosyncratic factors in a child's background may cause an extreme reaction to level one stressors. Level two is comprised of various types of severe stressors in the form of physical and mental abuse (e.g., no use of restrooms for several hours; hitting the student with a bat, cattle prod, electric cord, hammer, or sticking with a pin; tied to desks, and mouths taped closed). The stressors fit the statutory descriptions of child abuse and emotional maltreatment. The sources of abuse are pedagogical procedures used by educators in the name of discipline and motivation. However, these practices have serious potential to inflict emotional and physical abuse which can lead to clinically identifiable stress disorders, particularly PTSD.

Sniper Attack

Pynoos et al. (1987), Nader et al. (1990), and Schwartz and Kowalski (1991) worked with children after a sniper attack on their school playground and discovered interesting results in terms of factors which appear to be associated with the development of PTSD. One month after a fatal attack at an elementary school by a gunman, Pynoos et al. (1987) went into every grade and nearly every classroom to provide general consultation services. A few children from each class were randomly chosen to be evaluated by a

mental health provider. The sample was comprised of 159 children (14.5% of the student body), ages 5 - 13 who had various degrees of exposure to the sniper attack (from being pinned down on the playground to not being at school for that particular quarter). Self-report measures were used and exposure levels reported by the subjects were verified by parents, teachers, and schoolmates. The results revealed a significant difference in the degree of PTSD by exposure to the attack ($F [6, 152] = 16.06$, $p < .001$), but not by sex, ethnicity, or age. Proximity to the traumatic event appeared to be a significant variable to the development and degree of PTSD.

A follow-up study (Nader et al., 1990) was conducted 14 months later using both original and new subjects ($N = 100$) who were assessed as in the previous study. The level of exposure to the sniper attack remained the primary predictor of ongoing PTS reactions ($F [3, 96] = 20.6$, $p < .0001$). A rapid decrease in symptoms was observed in those less exposed. However, it was also found that guilt and knowing the child who was killed were associated with a number of PTSD symptoms and that grief reactions were independent of degree of exposure to the event. This finding introduces the potential that another variable along with geographic location may also serve to influence PTS reactions.

Schwartz and Kowalski (1991) screened 64 children for PTSD 6 - 14 months after a school sniper shooting. PTSD was associated more highly with emotional states recalled from the disaster ($p < .001$) than with proximity, which was found to be a trend only to the symptom of recurrent dreams ($p < .009$). Emotional states mediated the formation of memories in the children which led to PTSD symptomatology. This research does not necessarily counter the work done on proximity, for both findings can be

seen as complimentary to each other. Witnessing someone getting shot would be all the more traumatizing if it were a friend. In assessing PTSD it is equally important to take into account the children's proximity as well as the emotional states resulting from the traumatic event.

Political Violence

In covering the diverse area of political violence against children, studies involving exposure to war, Central American refugees, and apartheid will be presented. Posttraumatic stress reactions were not uncommon despite the vast cultural diversity of the subjects.

Exposure to War. Saigh (1989b) studied Lebanese children exposed to war and focused on the differential validity of the PTSD diagnosis. Differential validity of PTSD means that the disorder is distinguished from other, even similar disorders when assessed in individuals. Thus, the affective and behavioral parameters of traumatized children (n = 231) were contrasted against the symptoms of an associated clinical sample (n = 32) and a nonclinical control group (n = 35). Each of the children with PTSD had developed the symptoms following traumatic war episodes. The other clinical sample had a simple phobia (test taking) and no PTSD. All three groups were then assessed on the Children's Depression Inventory, the Revised Children's Manifest Anxiety Scale, and the Connors Teacher Rating Scale (a measure of classroom misconduct). It was found that the PTSD group scored significantly higher on all three measures than the other two groups. The differential validity of the diagnosis of PTSD in children was upheld. Saigh (1989a) replicated the study using younger Lebanese children (ages 6 - 8 versus 9 - 12) as subjects (N = 80) and found the same results. This study lowered the age for which the differential validity of the diagnosis of

PTSD in children can apply. Overall, the results provided an empirical basis of support for the PTSD classification as it applies to 6 - 12-year-old children.

The DSM-III (APA, 1980) criteria for PTSD were used in this research rather than those in the DSM-III-R (APA, 1987). One reason for this may have been that the research itself took place before the DSM-III-R came out, though the articles were published in 1989. Use of the DSM-III-R might have made it easier to identify and differentiate the PTSD group, and at the same time this would have strengthened the research since it is concerned with differential validity.

Central American Refugee Children. Very few studies have examined PTSD in Central American children in particular. One exception was a study performed by Masser (1992) which looked at the psychosocial functioning of Central American refugee children currently living in Los Angeles, CA. Research took place in a health care facility which offered free services to the Latino community. Parents filled out a questionnaire as part of the clinic's psychosocial screening process as well as a checklist of child symptoms and/or problems. Interviews were done either while the family was waiting to see a pediatrician or as a result of the pediatrician referring the families to the researchers. The average age of the subjects was 11 and ranged between 4 - 18. The time the children had lived in the US ranged from less than a year to about 9 years. Both parents and children (N = 31) were interviewed and usually in Spanish. Three variables were determined to be most important: (a) if children witnessed war violence in their country of origin, (b) if children had significant separation from their primary caregiver, and (c) if other problems came up (e.g., physical, sexual or emotional abuse; family psychopathology and/or alcoholism; problems immigrating). The results

indicated that the possibility of PTSD increased as the combination of stressors increased.

Apartheid. The subjects in a study by Dawes et al. (1989) were 67 Black South African families who had their homes burned to the ground 3 months earlier by government forces who wanted them to immigrate to an all-black township. While the research was taking place the families were in the process of rebuilding their homes, and the area was in a state of emergency due to regular house-to-house searches and arrests, rumors of further attacks, and the area frequently cordoned off by government forces. Therefore, the results may have been the symptom patterns of the ongoing situation rather than the result of the first attacks of the children's home. Families qualified as subjects if they had lost their homes in the attacks and had at least one child between the ages of 2 - 18 living with them. Researchers interviewed parents and children (N = 207) using the DSM-III. Though 9.2% of the children had PTSD and 32.4% had symptoms of PTSD, because the DSM-III was used, these results may be underestimated. Boys ages 2 - 6 had a greater frequency of PTSD symptoms (64.3%) than girls (35.7%). At 7 - 11 the frequency was insignificant between boys (44.7%) and girls (55.3%). Girls ages 12 - 17 had a greater frequency of PTSD symptoms (77.3%) than boys (22.7%) in this age range. An explanation for these results centered around the cultural roles and expectations for black boys and girls growing up in South Africa.

Type I and II Classification

The symptom profile of a child who has suffered acute versus chronic abuse is the basis of Terr's classification of type I and type II disorders

respectively (Terr, 1991). Type I trauma results from intense, single events and manifests symptoms which include full and detailed memories of the event, "omens" or cognitive reappraisals (an attempt to gain retrospective mastery over the event), and misperceptions of the event. Type II trauma is a chronic condition resulting from variable, multiple, or long-standing traumas and manifests symptoms which include denial and psychic numbing, self-hypnosis, dissociation, sadness, and rage. Terr acknowledged that crossover conditions often exist after sudden, shocking deaths or accidents that leave children handicapped. In these instances, characteristics of both type I and type II childhood traumas exist side by side. The classification of type I and II disorders were based on Terr's clinical experience and expertise. Independent of Terr, some empirical work has been done which concerns her classification of symptoms.

Famularo, Kinscherff, and Fenton (1990) investigated symptom differences between acute and chronic presentation of childhood PTSD. The children (N = 24) ranged in age between 5 - 13 with an average age of 9. The children had been previously diagnosed with PTSD secondary to severe maltreatment. The children were subsequently referred to one of three settings where they were assessed with a 90-minute psychiatric interview and given a PTSD inventory. These settings were an outpatient psychiatric clinic, an inpatient unit in a residential children's hospital, and a court clinic that evaluates children who have been removed from parental custody due to severe maltreatment. The children diagnosed with PTSD were further designated as presenting with acute or chronic PTSD depending upon the duration of symptoms. A significant difference ($p < .005$) was found on 11 of the 33 items in the inventory between these two groups. It was found that

the acute group had trouble falling asleep, hypervigilance, nightmares, exaggerated startle response, and generalized anxiety. The chronic group had a relative increase in symptoms of detachment, restricted range of affect, dissociative episodes, sadness, and a pessimistic view of life. In general, the findings supported the type I and II classification. However, a problem with the study is that it looked at the duration of PTSD symptoms and not whether the abuse itself was from a single event or more chronic in nature. Symptoms lasting longer do not necessarily mean the subject was exposed to chronic abuse, just as symptoms which are shorter in duration do not necessarily mean a limited experience of abuse.

Kiser et al.'s (1988) study dealt with victims of alleged sexual abuse in a daycare setting. The subjects were referred by the state Department of Human Services. The children and parents were evaluated through the use of many questionnaires, inventories, and checklists. The study showed that these victims (10 children, ages 2 - 6, average age of 4.2 years) had developed PTSD as well as Terr's type II disorder. A similar issue arises in this study as in the study mentioned above. The authors did not state how long the abuse had taken place. The subjects show type II symptoms but may have experienced abuse which was of limited duration. These two studies ultimately do not challenge or specifically support the validity of the type I and II etiological suppositions. However, the identified symptoms are in keeping with the classification system.

Kiser et al. (1991) assessed 163 consecutive admissions to a day treatment program for children and adolescents. The assessment was part of a pretreatment procedure; it included measures such as the Child Behavior Checklist and the Personality Inventory for Children which the parents

filled out. The patients were administered the Youth-Self Report and interviewed by a psychiatrist. The authors do not give any information on the subjects' ages. Results indicated that victims of ongoing abuse showed more depressed ($p < .01$), somatic ($p < .01$), and "somewhat more" hyperactive symptoms ($p < .079$) and displayed a wider range of symptoms ($p < .01$) than children with PTSD after single event abuse. In contrast, behavior disorders were more characteristic of victims of discrete abuse. On discriminant analysis, seven variables in combination correctly classified 100% of the PTSD subjects according to discrete versus ongoing experiences of abuse ($p < .05$). Though these results do not exactly concur with Terr's classification, the authors point out that their methods of data collection limited some of the range in symptoms they could compare between the groups. The findings do point to a difference in single event versus long-term trauma.

In general, the type I and II classification and the results of the studies seem to indicate that the effects of trauma can be seen as a spectrum. One extreme of the spectrum is characterized by disorders such as phobias and panic reactions related to distinct traumatic events, the other extreme is characterized by borderline and multiple personality disorder related to extreme and chronic violation (van der Kolk, 1988b). This is in keeping with Terr's symptom classification if type I disorders are viewed as a variation of one end of the spectrum, and type II disorders are placed near the other end.

Treatment Issues

The overall goal of treatment is to help victims with the process of integrating the trauma experience into their life. Though PTSD is amenable to therapy, traumatized patients are frequently very difficult to engage in psychotherapy. This probably is related both to fear of attachment (particularly when the victim has suffered violations by significant others) and reluctance to remember the trauma itself. After intense efforts to ward off reliving the trauma, resistances to remember are unlikely to diminish through empathic efforts alone. The trauma can only be worked through when a secure bond is established with another person. The resolution of trauma depends fundamentally on the security of interpersonal attachments. An overly rapid approach to the trauma related material may lead to the intensification of the affects and physiological states related to the trauma, leading to increased somatic, visual, or behavioral reexperiences (van der Kolk, 1988b). Before reviewing some of the different treatment modalities used for children who have suffered psychic trauma, the need for treatment will be discussed.

Need for Treatment

If a person is traumatized several years prior to an evaluation, it is still very important to screen for PTSD. This is especially true for children who, due to being in the early formative years of their life, can be more vulnerable to harmful effects of trauma. Posttraumatic stress disorder does not appear to go away due to time creating distance between the person and the traumatic event. The need for treatment can be derived from reviewing

the enduring effects trauma has on the body (as discussed in the Introduction section) and follow-up studies which show a high prevalence of PTSD and other psychiatric illness as a result of trauma when subjects have not received treatment during the interim.

In one such study by Kinzie et al. (1989) Cambodian subjects (N = 30) who were traumatized between the ages of 8 - 12 while living in Cambodia were reassessed when at the average age of 20. Each subject received a diagnostic interview from a psychiatrist as well as several structured interviews and self-report measures. The subjects had been in the US for approximately six years when the follow-up was done, approximately three years after a previous study took place. The subjects had suffered trauma caused by family separation, forced labor, starvation, direct personal injuries, and witnessing many deaths and executions. Much of this occurred while they were interned in concentration camps.

The original study (Kinzie, Sack, Angell, & Manson, 1986) found that 50% of the sample had PTSD along with many possessing depression and anxiety disorders. The results of the follow-up indicated that 49% had PTSD. Forty one percent were diagnosed with depression, which marked a decrease in percentage from the previous study. The conclusions from this study were that (a) even though the course of PTSD can wax and wane, it persisted over time in young Cambodians traumatized as children; (b) depression and anxiety decreased over time, but depression was associated with PTSD; and (c) PTSD was not related to any demographic or social data. These subjects had not sought treatment for their condition, and 8 - 12 years after being traumatized as children they were still severely affected by it. For the Cambodians who were reassessed in this study, as well as most individuals

who suffer from a traumatizing event, treatment can ameliorate their situation.

Specific Modalities

In reviewing the literature having to do with treatment, there is only one empirical study (Deblinger et al., 1990) which has been done to date. In an article reviewing different treatment modalities, Terr (1989) correctly stated that there is no generally accepted research study which has established one particular technique as standard. In addition, and partially due to this lack of research, it can be said that techniques for reduction of psychic trauma in children are still in the development stages. Despite the lack of empirical research and the relatively new emphasis being given to treatment, many different treatment modalities and programs exist and are discussed in nonempirical articles. The following is a brief overview of some of the different modalities which have been used with children. Specifically, crisis intervention, behavioral, cognitive, family, hypnosis, and residential treatment are reviewed. Sources which appeared to generally represent a particular modality are used as well as other articles which bring out important points needing to be considered for treating children with psychic trauma.

Crisis Intervention. Pynoos and Eth (1986) describe crisis intervention as an acute consultation service which has been used with over 200 children in a variety of clinical settings (e.g., homicide, suicide, rape, aggravated assault, accidental death, kidnapping, and school or community violence). The interview is designed for use in the initial meeting with a recently traumatized child. It begins by permitting the child first to express the impact of the trauma in play and fantasy, and through metaphor, by use of a

projective free drawing and story telling task. Second, the interviewer shifts attention to the actual traumatic episode. Supporting the child as well as dealing with any avoidance or denial of the trauma are important procedures to be used for a thorough exploration of the child's experience. Finally, the current life concerns and consequences for the child are addressed. This interview format is presented as a three-stage process: opening, trauma, and closure. As long as these three areas are covered, the procedures can be modified as a function of the child's particular responses. The intervention is meant for children ages 3 - 16 and should require approximately 90 minutes. It is important for the consultant to gain information from family and police about the actual events, the child's behavior, and family circumstance in order to be alert to important references and/or omissions in the child's account.

The interview functions both as an assessment tool and a therapeutic intervention. In terms of assessment it is designed to enable the interviewer to gain insight into the child's understanding of the event and to characterize the behavioral and emotional responses in order to plan and provide specific support to the child soon after the trauma. It is also therapeutic in that it allows the child to openly express, in different modalities, the experience of the trauma. The interview can be an intervention which introduces the child to processing and integrating the trauma with others in an open manner.

Behavioral Treatment. In general, Fairbank and Brown (1987) divide behavioral interventions for PTSD into two broad categories: (a) direct therapeutic exposure, and (b) coping skills training. Direct exposure interventions assist the child in directly confronting feared and avoided

aspects of the traumatic event so that changes in PTSD symptomology can occur. This can take the general form of in vivo and imaginal forms of direct exposure therapies such as systematic desensitization, flooding, and implosive therapy. Coping skills training focuses on improving the child's efforts to manage specific cognitive, affective, physiological, and behavioral excesses or deficits resulting from the trauma. Examples include relaxation training to reduce excessive autonomic arousal and anger management training to assist the survivor in controlling adverse emotionality.

It is also interesting to note that a child's symptoms can be instrumentally maintained by certain interactional patterns. These involve the child receiving positive reinforcement for evidencing the problem behaviors and negative reinforcement (e.g., escaping discipline) by talking about the traumatization experience. The treatment strategy developed consisted of "stimulus narrowing," in which the time periods when the child can talk of the trauma with their parents is limited. Differential reinforcement is also part of the strategy and involves having the caregiver reinforce all other activities during the week that were unrelated to the verbalization of the trauma experiences.

Cognitive Treatment. A cognitive behavioral approach was used by Deblinger et al. (1990) for the only empirical study on the treatment of children with PTSD. The research was with sexually abused girls (N = 19) whose age ranged from 3 - 16 and averaged 7.7 years. All subjects were evaluated and treated at an outpatient clinic of a medical college. Parents completed the Child Behavior Checklist and subjects over 6 were administered two instruments (Child Depression Inventory and State-Trait Anxiety Inventory) at the initial evaluation and 2 - 3 weeks later before the

initiation of treatment. No significant difference was found on the baseline data collected at these two different points in time. All children were diagnosed with PTSD.

The children and a nonoffending parent (mother) were seen for 12 sessions. Intervention for children consisted of gradual exposure, modeling, education, coping, and prevention skills training. Nonoffending primary caretaker interventions included helping the parent to therapeutically respond to the child's behavioral difficulties through the use of modeling, exposure, prevention training, and behavior management skills. Parents learned to detect the ways in which their interactions with their children may foster the maintenance of PTSD symptoms.

After 12 session, pretreatment measures were readministered, and results revealed significant improvements on all measures (Child Behavior Checklist: Externalizing, $p < .01$; Internalizing, $p < .001$; Child Depression Inventory, $p < .01$; State-Trait Anxiety Inventory: State anxiety, $p < .001$, Trait anxiety, $p < .01$). While treatment did not eliminate all PTSD symptoms suffered by the children, there were no subjects who continued to meet full diagnostic criteria for PTSD following treatment. One of the few ways this study could have been improved would be to take follow-up measures to determine the long-term effects of the treatment.

In her review of trauma in children, Lipovsky (1991) detailed the use of cognitive approaches with children diagnosed with PTSD. Education about PTSD is important to help normalize the symptoms they are experiencing as predictable reactions to trauma and to let them know that they are not "crazy." Anxiety reduction techniques can be employed such as deep muscle relaxation or positive imagery to help children cope with

overwhelming feelings. Another component included exposure techniques which help children process the thoughts, feelings, and memories of the traumatic event. This can be done through a variety of methods such as play therapy, drawings, dolls, letter writing, or storytelling, depending on what is developmentally appropriate. Cognitive restructuring was used with children to help clarify confusion and distortions of the trauma or its consequence. Cognitive restructuring involved exploring the children's belief system and finding cognitive misinterpretations about the events. Once detected, the therapist provided alternative interpretations that were healthier and more accurate. An example of an inaccurate perception would be the taking of responsibility for the death of a significant other when there was nothing the child could have done. The process of cognitive restructuring can also lead the way for children to redirect emotions more appropriately. For example, they begin to become less angry at themselves and more angry at the perpetrator who abused them.

Family Intervention. When a child is exposed to trauma, it is important to address the family needs. Caregivers can develop PTSD or trauma symptoms by virtue of their relationship with the victim. If the treatment needs of the primary caregivers are not recognized, they can inadvertently undermine and sabotage the child's treatment.

In a case study about a mother who developed PTSD as a result of her son being involved in an electrical accident, White (1991) discussed interventions for families of traumatized children. Emphasized was periodic education in regards to PTSD symptoms and reassurance that symptoms which develop are predictable reactions to such an event. Another intervention was to encourage the family members to express

thoughts and feelings relating to the trauma and its aftermath. Openly discussing conflicting perceptions can help clarify many issues as well as decrease alienation which may occur due to an unspoken rule within some families that they cannot share feelings with each other. In an article about PTSD in families, Brende and Goldsmith (1991) asserted that this is particularly the case when family shame develops as a result of intrafamilial sexual or physical abuse. Family secrets develop as a result of both shame and the family denial system in which everyone keeps silent about certain matters having to do with the trauma. In these situations, family therapy will focus on breaking down the alienation of family members and identify those who are lonely and angry within the family.

White (1991) explained that with each family member it will be important to assess the individual treatment needs and respond accordingly. For example, if the mother is quiet it cannot be taken for granted that she is adjusting to the situation, but might be depressed, angry, or guilt ridden. Counseling also may need to take place in regards to reestablishing the family to baseline functioning while continuing to deal with the long-term effects of their situation.

Hypnosis. In a case study dealing with traumatized children, Friedrich (1991) stated that many times the difficulty of working through the traumatic event in therapy can be proportional to the extent that the child is overwhelmed by or unable to access the traumatic event. Hypnotherapy is presented as a useful tool for uncovering the traumatic event(s) with associated affects, integrating, and making sense of the experience. Trauma is conceptualized as having split off parts of the child, and hypnosis is used to reclaim them. Since trauma can create a trance-like (dissociative) state in

children, hypnosis recreates this trance-like quality to help integrate the trauma. In a case study dealing with hypnosis and the treatment of sexually abused children, Rhue and Lynn (1991) suggested that hypnotherapy can proceed in a stepwise fashion: (a) from building a sense of safety and security; (b) to imaginative sharing; (c) the introduction of reality events; and (d) and the final step of addressing complex emotional issues of loss, trust, love, and guilt brought about by the trauma. The authors found that in dealing with younger children the use of hypnotherapeutic techniques which center on storytelling can be very effective. Storytelling presents the therapist with an opportunity to use comforting suggestions, symbolism, and metaphor to provide the emotional distance necessary to deal with the trauma of abuse.

Residential Treatment. Doyle and Bauer (1989) discussed some of the important aspects of treatment which they have incorporated into goals for their residents who have PTSD. One treatment objective was the articulation of affect. In this population the subjects were often abused for displays of affect and therefore were unable to express a full range of emotions. Encouragement to express and recognize feelings appropriately were enhanced through the mediums of expressive writing, art, music, wood, and garden therapies. Another goal was for the child to reexperience the trauma. In a group setting the children retold their trauma which helped to process and rework the experience and helped the child begin to master the trauma. The last goal was the integration of the trauma experience. One facet of this included being aware of the lifelong risks associated with the diagnosis. Another facet was the introduction of spiritual issues which can regenerate in those victimized a sense of spiritual

renewal; this appeared to enable them to reinterpret their painful history as well as to benefit from the dynamic of forgiveness. Forgiveness was presented as a gift one gives to oneself, in order to lessen the burden of vindictive bitterness and rage.

Conclusion

Besides addressing some of the modalities reviewed above, Terr (1989) also discussed play therapy, group treatment, and psychodynamic psychotherapy for traumatized children. Overall, the best program strategy in most cases is a combination of the above treatments. This is due to the many different levels of functioning at which trauma can affect a child as well as the generally accepted notion that no one technique is held as standard. As more research is done and more is learned, this situation will change. Since the overall goal of treatment is to help the victims with the process of integrating the trauma experience into their life, no one technique is a panacea, and a combination of several different treatments would, in most cases, be the best option.

Directions for Future Research

In this section, a three-way interactional model for conceptualizing factors which affect the manifestation of trauma symptoms will be presented. The model in general calls for continued research to help gain insight into the significant multi-faceted causal factors which bring about PTSD. After the three-way model is presented, a brief discussion on the specific needs for future research will conclude this paper.

Three-Way Interactional Model

Every child who is traumatized does not necessarily develop PTSD. Some may develop depression, an anxiety disorder, or show no ill effects whatsoever. Why trauma affects children (and for that matter, adults) in such different ways is not known at this time. However, as the field continues to evolve, more understanding into this clinical phenomena is gained. McCranie, Hyer, Boudewyns, and Woods (1992) investigated how negative parenting behavior and combat exposure influenced PTSD symptom severity in Vietnam veterans. In attempting to understand the development of PTSD among Vietnam combat veterans, two causal hypotheses were discussed which have been researched extensively over the last decade. Specifically, the "personal characteristics" hypothesis asserts that pre-existing vulnerabilities possessed by a person makes one more susceptible to develop PTSD, while the "extreme event" hypothesis states that posttraumatic adjustment is largely a consequence of the nature of the traumatic event itself. The research findings demonstrated that the two explanations were not mutually exclusive and gave support for a person-event interaction model which has helped to integrate both hypotheses. With posttraumatic symptoms viewed as a function of the dynamic interaction of both internal and external factors, this model allows individual variability in response to extreme life events. Though this model is meant for combat veterans it can easily be applied to children who are traumatized.

An important addition to the person-event interactional model that needs to be taken into account to more accurately determine the development of trauma symptoms is the environment. In this instance,

environment refers to all external conditions and factors affecting a child (e.g., parents, family, friends, teachers, support systems or lack thereof, parental trauma, what they eat, where they live). For example, Lyons (1987) in her paper on PTSD in children stated that often the strongest outcome predictor for a traumatized child is the ability of significant adults to deal with the traumatic event. If parents avoid or deny these events in their children's life, they reinforce the fear that the event is overwhelming and deprive them of much-needed social support. The person-event model (McCranie et al., 1992) would have difficulty taking into account the current parental influences as anything other than a personal characteristic of the subject. The three-way interactional model of person-event-environment would see parenting as an environmental factor affecting the child.

In the three-way interactional model, important characteristics of the trauma will influence the expression of trauma symptoms. Thus, it would be helpful to know the type of trauma, severity, amount of exposure, degree of life threat, persons and objects involved both as victims and perpetrators, and other important factors. For the children who are victims, important areas to look into would be age; gender; intelligence; past traumas; development in areas of cognition, emotion, and behavior; use of psychological defenses and coping behaviors; prior adjustment; time elapsed since the abuse; and perceptions and cognitive interpretations of the event(s). An example of how the model can be applied is in an empirical study by Green et al. (1991) dealing with children who were exposed to a dam collapse in 1972. It was determined that life threat, gender, parental psychopathology, and an irritable and/or depressed family atmosphere all contributed to the prediction of PTSD symptomatology in the children.

These findings involved all three areas of the model, the event (life threat), the child (gender), and the environment (parental psychopathology and family atmosphere).

This model asserts that prediction of types of symptoms manifested will be based on the degree to which all the information about the trauma, the child, and the child's environment are known. When looked at from a practical basis along with the studies being done today, effort can be put forth to try to determine the more important factors which relate to symptom manifestation or lack thereof. In other words, future research can uncover both the basic and unique relationships that exist in the dynamics of person-event-environment. On a certain level, this model simply encourages expanding the analysis of intervening variables (which is discussed in the methodological section of this paper) and conceptualizes it in ways that are broader and more complicated than the two-way interactional model (McCranie et al., 1992). Another strength of the three-way model is that it allows for the analysis of co-variance.

Specific Areas Needing More Research

Some specific areas for future research include more long-term follow-up studies in order to understand how symptoms vary over time and how this variation is related to child development and particular environmental variables. Also, more research needs to be done on the factors which influence children who are asymptomatic following a trauma. The results of this work could help develop preventative health programs as well as the prognosis and treatment strategies used with symptomatic children. Research is needed in the area of the traumatic effects of physical abuse. Though some work has been done in the past and researchers agree

that it is traumatic, more detailed investigations into the links between physical abuse and trauma is necessary. Empirical work also needs to be done in the area of treatment. To date, there has been only one empirical study done on treatment. With a few changes, many of the treatment articles reviewed could have been empirically based.

The experience of trauma can result in the formation of PTSD in children. The dynamics of this process are complex and are just begining to be understood. This paper has reviewed a facet of these intricate relationships.

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VITA

NAME:

Christopher Robb Karcher

EDUCATION:

Rosemead School of Psychology Clinical Psychology	Psy.D.	(Cand.)
Rosemead School of Psychology Clinical Psychology	M.A.	1990
Biola University Psychology	B.A.	1988

INTERNSHIP:

Portsmouth Naval Hospital Portsmouth, Virginia	1992 -	1993

PRACTICA:

Biola Counseling Center Outpatient Program	1990 -	1992
Camarillo State Hospital Inpatient Program		1991
Upland High School School Practicum		1990
Whittier Middle School School Practicum		1989

EMPLOYMENT:

Outpatient Mental Health, Naval Hospital, Oakland, CA Assistant Department Head, Outpatient Mental Health	1993 -	present
Family Service Center, Bellflower, CA MFCC Intern	1991 -	1992